CLAIMS

1. A method of diagnosis of onset of endotoxemia or sepsis due to Gram negative bacterial infection said method comprising monitoring of the degree of AP occupancy of LPS binding sites on alkaline phosphatase in a sample of tissue or fluid derived from a patient, wherein the degree of AP occupancy is associated with presence or absence of Gram negative bacterial infection.

2. A method according to claim 1, wherein the degree of AP occupancy of LPS binding sites on alkaline phosphatase in the sample is lower than that of an equivalent sample type of an individual free of Gram negative infection.

3. A method according to claim 1 or 2, wherein the degree of AP occupancy of LPS binding sites on alkaline phosphatase in a sample or tissue or fluid derived from a patient, is monitored over a period of time, wherein a decline of the degree of AP occupancy indicates Gram negative bacterial infection.

4. A method according to any of the preceding claims, wherein the degree of AP occupancy of LPS binding sites on alkaline phosphatase in the sample is determined and wherein onset of decline in the degree of AP occupancy indicates onset of Gram negative bacterial infection.

5. A method according to any of the preceding claims wherein the degree of AP occupancy of LPS binding sites on alkaline phosphatase may also indicate a mixed or single infection of Gram negative and Gram positive bacteria.

6. A method according to any of the preceding claims wherein the sample is subjected to binding with a ligand for the LPS binding site on alkaline phosphatase followed by determination of the degree of binding of the ligand.

7. A method according to any of the preceding claims wherein the ligand for the LPS binding site on alkaline phosphatase is selected from the group consisting of naturally occurring ligands, chemically modified or genetically modified derivatives of natural LPS binding site binding substances, chemically produced ligands.

8. A method according to any of the preceding claims, wherein the sample is subjected to binding with a ligand for the LPS binding site on alkaline phosphatase selected from LPS, Lipid A, an LPS binding site antibody against alkaline phosphatase, a Fab fragment with LPS binding site binding ability on alkaline phosphatase, a single chain fragment of an immunoglobulin having LPS binding site binding activity on

alkaline phosphatase.

9. A method according to any of the preceding claims, wherein the LPS binding site binding ligand has at least the affinity for the LPS binding site of alkaline phosphatase of LPS.

10. A method according to any of the preceding claims wherein the LPS binding site binding ligand has at least the affinity for the LPS binding site of alkaline phosphatase of lipid A.

11. A method according to any of claims 1-5 wherein the degree of AP occupancy of LPS binding sites on alkaline phosphatase is determined by assessment of the dephosphorylating capacity of alkaline phosphatase in the sample.

12. A method according to claim 11, wherein the ratio of dephosphorylating alkaline phosphatase to non dephosphorylating alkaline phosphatase is determined.

13. A method according to claim 12, wherein the ratio is determined using the values obtained by assessment of total alkaline phosphatase activity using biochemical methods to determine dephosphorylating activity and by assessment of total amounts of alkaline phosphatase using e.g. antibodies or otherwise discriminating entities and calculating the ratio of these values.

14. A method according to any of the preceding claims wherein the sample is from a cholestasis free patient.

15. A method according to any of claims 1-13 wherein the method also comprises a further assay of a sample from the patient for another disease related to increase of alkaline phophatase activity, said further assay employing a method avoiding determination of alkaline phosphatase level.

16. A method according to claim 15 wherein the further assay is carried out when no decline in AP occupancy of LPS binding sites of alkaline phosphatase according to the method of any of claims 1-14 is detected.

17. A method according to any of the preceding claims, wherein the sample is taken from an individual at risk of Gram negative bacterial infection.

18. A method according to claim 17 wherein the sample is taken from an individual either both prior to and following trauma or shortly after having undergone trauma, wherein the trauma in particular concerns surgery, burns or ischemic traumas.

19. A method according to any of the preceding claims wherein the sample is taken from an individual during hospitalisation.

20. A method according to any of the preceding claims wherein the sample is taken a number of times over a period of time and the data are compared thus revealing the level of AP occupancy over time.

21. A method according to any of the preceding claims wherein the period of time is as long as the individual is at risk of infection i.e. during hospitalisation or post trauma recovery.

22. A method according to any of the preceding claims wherein the result of the assay is compared to a standard value thus revealing whether the degree of AP occupancy is indicative of endotoxemia or sepsis or the risk thereof.

23. A method according to any of the preceding claims wherein the sample is a sample selected from the group consisting of blood and tissue, said blood sample for example being serum, said tissue being other than bone and said tissue for example being selected from liver and intestine.

24. A kit comprising alkaline phosphatase LPS binding site binding ligand and instructions for carrying out an assay according to any of the preceding claims and optionally any additional components required for such assay e.g. detectable marker, buffer, containers and comparative samples or data charts e.g. standard curves or data concerning relevant data of alkaline phosphatase values.

25. A kit comprising alkaline phosphatase LPS binding site binding ligand for carrying out an assay according to any of the claims 1-23 and any additional component required for such assay being selected from the following group consisting of detectable marker, buffer, containers, comparative samples, data charts e.g. standard curves or data concerning relevant data of alkaline phosphatase values.

25. A method for therapy of endotoxemia or sepsis said method comprising administration of a pharmaceutically effective amount of the LPS binding site of alkaline phosphatase in a systemically acceptable form with the proviso the ligand is neither alkaline phosphatase nor a derivative of alkaline phosphatase having dephosphorylating activity.

26. A method for removing LPS from tissue or fluid said method comprising contacting the LPS binding site of alkaline phosphatase with the tissue or fluid to be treated followed by separation of the LPS binding site and the tissue or fluid after the the LPS binding site has bound the LPS present in the fluid or tissue, with the proviso the ligand is neither alkaline phosphatase nor a derivative of alkaline phosphatase having

dephosphorylating activity.

27. A method of purification of AP itself from tissue or body fluids or other biological production systems with a compound with an LPS binding site of alkaline phosphatase such as LPS, lipid A or other ligand as described in the preceding claims.

28. Use of a compound with an LPS binding site of alkaline phosphatase such as LPS, lipid A or other ligand as described in the preceding claims as active compound in a medicament for therapy or diagnosis.

29. Use of a compound with an LPS binding site of alkaline phosphatase such as LPS, lipid A or other ligand as described in the preceding claims as active compound in therapy or diagnosis.